

ASTER TARDIFLORUS L. COLCHESTER COUNTY: by spring in woods near Summit Park on Route 11, about 12 miles north of Truro, no. 2608.

A very typical colony.—M. L. FERNALD.

## SOME ADDITIONS TO THE OKLAHOMA FLORA

U. T. WATERFALL

DURING the summer of 1948 the author continued his research on the flora and vegetation of Oklahoma as Botanist with the Oklahoma Biological Survey, following a general plan previously outlined.<sup>1</sup> Collections were made from areas situated in all parts of the state. Particular attention was given to those showing evidence of unique floral relationships as compared with the flora of the principal parts of the state.

One such area is to be found in southwestern Oklahoma, especially in Harmon and Jackson Counties. Much of the land is in cultivation, wheat being the principal crop at the present time. Other parts are too rough or have a soil too shallow and poorly developed for agriculture. Much of the latter land is used for pasture, and is frequently characterized by *Buchloe dactyloides* with a sparse to a rather dense stand of *Prosopis juliflora* var. *glandulosa*. Other characteristic grasses on such sites are *Boutelous rigidiseta*, *B. gracilis*, *Aristida purpurea*, *Muhlenbergia Torreyi*, *Triodia pilosa* and *Schedonnardus paniculatus*. *Hordeum pusillum* is frequently abundant in the spring.

On saline sites the principal grasses found are *Sporobolus airoides* and *Distichlis stricta*. Occasionally *Sporobolus texana* is abundant.

On sandy soils *Andropogon scoparius* becomes the dominant species when not overgrazed. *Andropogon Hallii* is often abundant, and *Artemisia filifolia* is more or less common, its abundance depending primarily on the grazing pressure.

In the southwestern part of Harmon County *Condalia obtusifolia* becomes a characteristic shrub found scattered on grassland, and fairly abundant on ridges and "breaks" along the Red River and its tributaries. Here also are found *Rhus microphylla*,

<sup>1</sup> Waterfall, U. T., *Some Results of a Summer's Botanizing in Oklahoma*. RHODORA 51: 18-21, 1949.



*Opuntia leptocaulis*, *Cassia Roemeriana*, *Setaria macrostachya*, *Nicotiana trigonophylla* and *Cevallia sinuata*.

A list of some of the species of southwestern affinities collected in this general area includes *Juniperus Pinchoti*, *Bouteloua barbata*, *B. rigidiseta*, *Hilaria mutica*, *Setaria macrostachya*, *Sueada suffrutescens*, *Abronia fragrans*, *Clematis Drummondii*, *Cassia Roemeriana*, *Erodium texanum*, *Euphorbia albomarginata*, *E. lata*, *Reverchonia arenaria*, *Rhus microphylla*, *Condalia obtusifolia*, *Sida physocalyx*, *Cevallia sinuata*, *Echinocactus texensis*, *Opuntia leptocaulis*, *Limonium limbatum*, *Sarcostemma crista*, *S. cynanchoides*, *Cressa truxillensis*, *Verbena plicata*, *Lycium Barlandieri*, *Nicotiana trigonophylla*, *Plantago Wrightiana*, *Houstonia humifusa*, *Ibervillea Lindheimeri*, *Aphanostephus ramosissimus*, *Gaillardia pinnatifida*, *Haploesthes Greggii* var. *texana* and *Helenium microcephalum*.

There follows an enumeration of plants new to Oklahoma or otherwise noteworthy. Those that the author believes to be hitherto unreported from the state are prefixed with an asterisk. There are thirty-five such entities recorded.

### ENUMERATION OF SPECIES

\**AEGILOPS CYLINDRICA* Host., var. *RUBIGINOSA* Popova. The pubescent variety was collected as *Waterfall* 7786, overgrazed pasture, 3 miles south of Gould, Harmon County, June 5, 1948. In our herbarium we also have referable to this variety *Charles Smith* 2073, Beckham County, June 11, 1940.

\**AGROSTIS VERTICILLATA* Vill. was collected as *Waterfall* 7919, sand, bed of the Cimarron River, 4 miles north and 1 mile west of Kenton, Cimarron County, June 14, 1948. It was quite abundant there.

Hitchcock<sup>1</sup> says it is found from "Texas to California, north to southern Utah and Washington". His distribution map shows that it has been collected in New Mexico. Featherly<sup>2</sup> does not list it from Oklahoma.

\**BOUTELONA BARBATA* Lag. was collected as *Waterfall* 8729, shallow silty clay on gypsum, 6 miles south of Hollis, Harmon County, August 26, 1948.

<sup>1</sup> Hitchcock, A. S., *Manual of the Grasses of the United States*. 329-330. 1935.

<sup>2</sup> Featherly, H. I., *Manual of the Grasses of Oklahoma*. 1946.



Featherly (op. cit.) does not list this species from Oklahoma. Hitchcock<sup>1</sup> includes the adjoining states of Texas and New Mexico in its range.

*ERIANTHUS ALOPECUROIDES* (L.) DC. Featherly (op. cit.) cites this species from Oklahoma. As the basis for its inclusion, he says: "Specimen (727529) in the U. S. National Herbarium . . . Indian Territory. The collector's name is not on the label, nor is the date. The place on the form label for date is made 188—, which shows that it was probably collected sometimes in the eighties."

Referred to this species is *Waterfall* 8532, rocky slopes of Kiamichi Mountains, 1 mile north and  $\frac{1}{2}$  mile west of Honobia, Pushmataha County, August 9, 1948. Thus, after 60 years, is made a confirmatory collection of the above somewhat dubious record.

\**GLYCERIA ARKANSANA* Fernald. A species of *Glyceria* apparently referable to *G. arkansana* was collected as *Waterfall* 8070, in swamp at edge of pond, 8 miles west of Tom, McCurtain County, June 23, 1948.

Fernald<sup>2</sup> in describing the species cites material from Arkansas and Louisiana. Hitchcock<sup>3</sup> adds "Texas (fide Fernald)". This is another element of the flora which is southeastern in its affinities.

\**MUHLENBERGIA PORTERI* Scribn. was collected as *Waterfall* 8669, blue and red shale along West Carrizo Creek, 3 miles north and  $\frac{1}{2}$  mile west of Kenton, Cimarron County, August 23, 1948, and as *Waterfall* 8693, sandstone buttes (with *Pinus cembroides* var. *edulis*, *Pinus ponderosa*, *Juniperus monosperma* and *Quercus* spp. south of Tesequite Creek, 1 mile west and 4 south of Kenton, Cimarron County, August 24, 1948.

The species is not listed by Featherly (op. cit.). Hitchcock<sup>4</sup> says it occurs from "western Texas to Colorado, Nevada and southern California, south to northern Mexico".

\**ORYZOPSIS HYMENOIDES* (Roem. & Schult.) Ricker. This species was collected as *Waterfall* 7910, sand around white sandstone, north of the Black Mesa, 3 miles north and  $\frac{1}{2}$  west of Kenton, Cimarron County, June 13, 1948.

<sup>1</sup> Hitchcock, A. S., *op. cit.* 517.

<sup>2</sup> Fernald, M. L. *Four Grasses of Eastern America*. *RHODORA* 31: 49. 1929.

<sup>3</sup> Hitchcock, A. S., *op. cit.*

<sup>4</sup> Hitchcock, A. S., *op. cit.* 381. 1935.



Hitchcock (*op. cit.*) shows the species occurring in the adjacent states of Kansas, Colorado, New Mexico, and Texas, but not in Oklahoma.

*SPOROBOLUS POIRETII* (Roem. and Schult.) Hitchc. This species was collected as *Waterfall* 8045, sand, edge of oak-pine woods, 1 mile west of Tom, McCurtain County, June 23, 1948.

Hitchcock (*op. cit.*) gives Arkansas and Texas as constituting its western limit of range. Featherly (*op. cit.*) states that it has been collected in Pittsburg County. Possibly it will be found in the intervening area.

\**CYPERUS COMPRESSUS* L. Referred to this species is *Waterfall* 8477, collected in flower beds, Cavender Tourist Courts, Idabel, McCurtain County, August 8, 1948.

Small<sup>1</sup> states that this species occurs "in fields, Maryland to Florida, Missouri and Texas." Cory<sup>2</sup> lists it only from the Coastal Prairies.

\**CYPERUS FLAVESCENS* L., var. *POAEFORMIS* (Pursh.) Fern. So referred is *Waterfall* 8059, ditch east of Tom, McCurtain County, June 23, 1948.

Neither Jeffs and Little<sup>3</sup> nor Stevens<sup>4</sup> list the species from the state. Fernald<sup>5</sup> says that var. *poaeformis* extends from the West Indies and Florida to Texas, northward to southeastern New York, Pennsylvania, Ohio, Michigan, Illinois and Missouri.

\**RHYNCHOSPORA CORNICULATA* (Lam.) Gray, var. **typica** nom. nov. (*Schoenus corniculatus* Lam. Tabl. Encycl. 1: 137. 1791). Referred to var. *typica* is a collection having achenes about twice as wide as the bases of the tubercles. According to Fernald<sup>6</sup> this is a distinguishing characteristic of typical *R. corniculata*. The collection is *Waterfall* 8528, slew 3 miles east of Albion, Pushmataha County, August 9, 1948. Also referred to var. *typica* is *Waterfall* 8106, 2 miles southeast of Talihina, LeFlore County, June 24, 1948.

<sup>1</sup> Small, J. K., *Flora of the Southeastern United States*. 1913.

<sup>2</sup> Cory, V. L., *Catalogue of the Flora of Texas*. 26. 1938.

<sup>3</sup> Jeffs, R. E. and Elbert L. Little. *A Preliminary Checklist of the Ferns and Seed Plants of Oklahoma*. 1930.

<sup>4</sup> Stevens, G. L. *The Flora of Oklahoma*. Unpublished MSS. Original deposited in the Widener Library of Harvard University. 1916.

<sup>5</sup> Fernald, M. L. *Last Survivors in the Flora of Tidewater Virginia*. RHODORA 41: 529-530. 1939.

<sup>6</sup> Fernald, M. L., *Some Allies of Rhynchospora macrostachya*. RHODORA 20: 138-140. 1918.



\**RHYNCHOSPORA CORNICULATA* (Lam.) Gray, var. *INTERIOR* Fern. So referred are plants collected as *Waterfall* 8449. The perianth bristles are shorter than the achenes, which have their distal ends little wider than the bases of the tubercles as described by Fernald (op. cit.). The collection was taken from a swamp at the edge of Big Grassy Lake, 4 miles west and 4 south of Tom, McCurtain County, August 7, 1948. In our herbarium we also have *Milton Hopkins and Van Valkenburgh* 6127, deep rich swampy woods of maple, gum, and water oak near cypress swamps, 5 miles east and 4 south of Broken Bow, McCurtain County, October 12, 1941.

\**RHYNCHOSPORA GLOMERATA* (L.) Vahl., var. *ANGUSTA* Gale. We have one collection of *R. glomerata* which is referred to var. *angusta* because it has a more slender and accentuated gynophore than our other representatives of this species. It is *Waterfall* 8549, ditch 8 miles west and  $1\frac{1}{2}$  south of Talihina, Latimer County, August 9, 1948.

Gale<sup>1</sup> cites material from Arkansas, Louisiana, and Texas.

\**RHYNCHOSPORA GLOBULARIS* (Chapm.) Small, var. *RECOGNITA* Gale (*R. cymosa* of authors).

Gale<sup>2</sup> gives a range-statement that includes "scattered in eastern Texas (and) Louisiana." Jeffs and Little<sup>3</sup> list this species (as *R. cymosa*) but the only material so named in our herbarium, *Little*, sin num., Muskogee County, July 4, 1929, is not that species, but is *R. Harveyi*. This sheet is probably the basis for the previous report of *R. cymosa*.

*SCIRPUS CALIFORNICUS* (C. A. Meyer) Steudel was collected as *Waterfall* 8029 and 8446, both from the swamp at the edge of Big. Grassy Lake, 4 miles west and 4 south of Tom, McCurtain County.

The only other reference I find to this species from Oklahoma is in Beetle's Monograph<sup>4</sup> where he cites *J. deGruchy* 130 collected near Tahlequah.

\**SCLERIA OLIGANTHA* Michx. was collected as *Waterfall* 8061, in woods  $3\frac{1}{2}$  miles south and 2 miles east of Tom, McCurtain County, June 23, 1948.

<sup>1</sup> Gale, Shirley. *Rhynchospora* Section *Eurhynchospora* in Canada, the United States and the West Indies. *RHODORA* 46: 245-246. 1944.

<sup>2</sup> Gale, Shirley. *Rhynchospora*, Section *Eurhynchospora* in Canada, the United States and the West Indies. *RHODORA* 46: 245-246. 1944.

<sup>3</sup> Jeffs, R. E. and Elbert L. Little, *A preliminary List of the Ferns and Seed Plants of Oklahoma*. Publ., U. of Okla. Biol. Survey. 2 (2): 1930.

<sup>4</sup> Beetle, Alan A., *Studies in the Genus Scirpus L. III*. *Am. Jour. Bot.* 28: 698-699. 1941.



Core<sup>1</sup> cites collections from the adjacent states of Arkansas and Texas. The author's 8061 represents an eastern extension into Oklahoma.

SCLERIA TRIGLOMERATA Michx. sensu Fern.<sup>2, 3</sup> non sensu Core. In our herbarium we have the following sheets of this species: *E. Little* 2572, Muskogee County, August 28, 1927; *O. M. Clark* sin num, Laura, Latimer County, June 16, 1930.

\*JUNCUS BUFONIUS L. was collected as *Waterfall* 8052, in ditch east of Tom, McCurtain County, June 23, 1948.

This small annual *Juncus* is not listed by Jeffs and Little (*op. cit.*). Stevens (*op. cit.*) includes the species, but only says it "should be expected." The above cited collection realizes his expectation.

\*QUERCUS GAMBELII Nutt. Referred to this species are: *Waterfall* 8700 and 8701, canyon between hills, 5 miles south and 1 west of Kenton, Cimarron Counties, August 24, 1948, and *Waterfall* 7951, same locality, June 14, 1948.

\*SILENE STELLATA (L.) Ait. f. var. SCABRELLA (Nieuwl.) Palm. and Steyerl. In our herbarium we have 2 sheets of the typical, glabrous variety. The other 15 sheets are of var. *scabrella*.

CLEMATIS DRUMMONDII T. & G. was taken as *Waterfall* 8715 (pistillate) and 8732 (staminate), 4 miles south of Hollis, Harmon County, August 26, 1948.

Stevens (*op. cit.*) has previously reported it from the "south-western part of the State." The species is little collected in Oklahoma. We have no other material in our herbarium, and it is not listed by Jeffs and Little or by Stemen and Myers.

(To be continued)

<sup>1</sup> Core, Earl L. *The American Species of Scleria*. *Brittonia* 2: 75-76. 1936.

<sup>2</sup> Fernald, M. L., *Plants from the Outer Coastal Plain of Virginia*. *RHODORA* 38: 398. 1936.

<sup>3</sup> Fernald, M. L., *Another Century of Additions to the Flora of Virginia*. *RHODORA* 43: 539-541. 1941.

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